



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

| | |
|-----------------------|--|
| Application No.: | R13-2847 |
| Plant ID No.: | 083-00127 |
| Applicant: | JF Allen Company |
| Facility Name: | Pond Lick Mountain Quarry |
| Location: | Bowden, Randolph County |
| SIC Code: | 1422 Stone/Aggregate Sizing Plant |
| Application Type: | Construction |
| Application Received: | July 6, 2010 |
| Engineer Assigned: | David Keatley |
| Fee Amount: | \$2,000 (\$1,000 Construction + \$1,000 NSPS Fee) |
| Date Fee Received: | July 7, 2010 |
| Complete Date: | August 31, 2010 |
| Due Date: | November 29, 2010 |
| Applicant Ad Date: | July 7, 2010 |
| Newspaper: | <i>The Inter-Mountain</i> |
| UTM's: | Easting: 608.507 km Northing: 4,306.917 km Zone: 17 |
| Description: | Applicant proposes to construct a stone/aggregate sizing plant consisting of screening, crushing, conveying, and trucking. |

DESCRIPTION OF PROCESS

J.F. Allen Company proposes to construct a stone processing plant at the Pond Lick Mountain Quarry. The processing plant will have the operations of screening, crushing, conveying, stockpiling, and trucking. The proposed operation rates are 700 tons per hour (tph) and 2,956,800 tons per year (tpy). The plant will be constructed in two different phases that have two close, but different physical locations.

Phase 1 has the following equipment: KPI-JCI Fast Trax 3055 jaw crusher (CR1), a 6' x 20' KPI-JCI 6203-32LP three (3) deck screen plant (S1), belt conveyors BC1, BC13, BC2, BC3, BC4, BC5, and BC6, and radial stackers RS1, RS2, RS3, and RS4. S1 will be powered by 275 kW generator set utilizing a Caterpillar C9 DITA Tier 3 diesel engine (ENG1) and CR1 is powered by a 440 hp Caterpillar C13-440 diesel engine (ENG2).

Phase 2 has the following equipment: Hazmag APS 1320 secondary impactor (CR2), an 8' x 20' KPI-JCI 8203-38LP three deck (3) screen plant (S1), belt conveyors BC7, BC8, BC9, BC10, BC11, and BC12, and radial stackers RS5, RS6, and RS7. The equipment will be powered by a 735 kW generator set utilizing a Caterpillar C27 DITA Tier 2 diesel engine (ENG3). In the Phase 2 configuration, RS4 moves from being fed by BC6 to being fed by BC9.

Stockpiling will consist of one (1) area around the plant (OS1), which will consist of multiple piles of raw and sized materials. Raw material is trucked from the quarry to the plant.

SITE INSPECTION

The permit writer performed a site inspection on September 17, 2010. Directions from Charleston. Take I79 N until exit 99. Take US33 E past Elkins, the site is about two miles west of Bowden on the right.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

All of the estimated maximum controlled emission rates were determined by engineering estimate.

| Source ID | Emission Source | Pollutant | Maximum Hourly Emissions (lb/hr) | Maximum Annual Emissions (tpy) |
|-----------|------------------------------|----------------------------|----------------------------------|--------------------------------|
| TP | Includes turning points 1-34 | Total Particulate Matter | 27.27 | 57.49 |
| | | PM ₁₀ | 14.78 | 31.14 |
| CR1 | Jaw Crusher | Total Particulate Matter | 0.28 | 0.59 |
| | | PM ₁₀ | 0.14 | 0.3 |
| CR2 | Hazmag Impactor | Total Particulate Matter | 0.49 | 1.03 |
| | | PM ₁₀ | 0.22 | 0.46 |
| S1 | Screen (PE) | Total Particulate Matter | 8.75 | 18.48 |
| | | PM ₁₀ | 3.05 | 6.43 |
| S2 | Screen (FE) | Total Particulate Matter | 2.25 | 4.75 |
| | | PM ₁₀ | 0.78 | 1.65 |
| ENG1 | Caterpillar C9 DITA | Nitrogen Oxides | 2.91 | 6.13 |
| | | Carbon Monoxide | 0.54 | 1.14 |
| | | Volatile Organic Compounds | 1.13 | 2.39 |
| | | SO ₂ | 0.91 | 1.92 |
| | | PM ₁₀ | 0.15 | 0.32 |
| | | Benzene | 0.0029 | 0.0061 |
| | | Toluene | 0.0013 | 0.0027 |
| | | Formaldehyde | 0.0037 | 0.0078 |
| | | Acetaldehyde | 0.0024 | 0.0051 |

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|------|-------------------------|----------------------------|--------|--------|
| ENG2 | Caterpillar C13-440 | Nitrogen Oxides | 2.52 | 5.32 |
| | | Carbon Monoxide | 1.36 | 2.87 |
| | | Volatile Organic Compounds | 1.1 | 2.32 |
| | | SO ₂ | 0.89 | 1.88 |
| | | PM ₁₀ | 0.1 | 0.21 |
| | | Benzene | 0.0029 | 0.0061 |
| | | Toluene | 0.0013 | 0.0027 |
| | | Formaldehyde | 0.0036 | 0.0076 |
| | | Acetaldehyde | 0.0024 | 0.0051 |
| ENG3 | Caterpillar C27 DITA | Nitrogen Oxides | 13.71 | 28.96 |
| | | Carbon Monoxide | 1.44 | 3.04 |
| | | Volatile Organic Compounds | 0.64 | 1.35 |
| | | SO ₂ | 0.36 | 0.76 |
| | | PM ₁₀ | 0.22 | 0.46 |
| | | Benzene | 0.0055 | 0.0116 |
| | | Toluene | 0.002 | 0.0042 |
| | | Formaldehyde | 0.0006 | 0.0013 |

REGULATORY APPLICABILITY

45CSR7 - "To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations"

Pond Lick Mountain Quarry Facility meets the definition of manufacturing process defined in 45CSR7. This manufacturing process source that involves a physical change (45CSR7-2.39.a) and is consider a source operation type 'a'. The source operation process weight rate is 700 tons/hr or 1,400,000 lb/hr. The facility is not allowed to emit particulate matter from any duplicate source operation in excess of the allowable limit (45CSR7-4.1). From Table 45-7A the maximum allowable total stack emission rate is 50 lb/hr. The facility proposes three duplicate source total particulate matter limits: crushers = 0.77 lb/hr, screens = 11 lb/hr, and engines = 0.47 lb/hr which are all below the 50 lb/hr maximum allowable total stack emission rate.

This facility shall not cause, suffer, or allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity (45-7-3.1). This twenty (20) percent opacity requirement shall not apply to smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period (45-7-3.2). The Pond Lick Mountain Quarry Facility shall not cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process(es) that pursuant to 45CSR7-5.1 is required to have a full enclosure and be equipped with a particulate matter control device (45-7-3.7). The

Pond Lick Mountain Quarry Facility shall not cause, suffer, or allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter (45-7-5.1). The Pond Lick Mountain Quarry Facility shall maintain particulate matter control of the plant premises, and plant owned, leased or controlled access roads, by paving, application of asphalt, chemical dust suppressants or other suitable dust control measures. Good operating practices shall be implemented and when necessary particulate matter suppressants shall be applied in relation to stockpiling and general material handling to minimize particulate matter generation and atmospheric entrainment (45-7-5.2).

45CSR13 - "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation"

Pond Lick Mountain Quarry Facility is subject to 45CSR13 because this source would emit at least 6 lb/hr and 10 tons/year of total particulate matter (any uncontrolled regulated air pollutant).

45CSR22 - Air Quality Management Fee Program

The Pond Lick Mountain Quarry Facility shall not operate nor cause to operate a plant or stationary source of air pollution without first obtaining and having in effect a valid certificate to operate (44-22-4.1a). In addition to the \$1,000 construction application fee an additional NSPS fee is required because this facility is subject to Subpart OOO.

45CSR16 - Standards of Performance for New Stationary Sources

45CSR16 incorporates by reference the standards of performance for new stationary sources (40CFR60). Pond Lick Mountain Quarry is subject to 40CFR60 Subpart OOO and Subpart III, therefore Pond Lick Mountain Quarry is subject to 45CSR16.

45CSR30 - Requirements for Operating Permits

Pond Lick Mountain Quarry is subject to Subpart OOO and therefore subject to 45CSR30 as a deferred source. CHK will be required to keep their Certificate to Operate current.

40CFR60 - Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines)

This facilities engines were manufactured after April 1, 2006 and is therefore subject to Subpart IIII.

40CFR89.112 Table 1 provides the allowable emission standards from nonroad engines. ENG1 is a 448 hp engine manufactured on February 2009 which is a Tier 3 engine and has allowable emissions standards (g/kW-hr) are: $\text{NO}_x = 4.0$, $\text{CO} = 3.5$, and $\text{PM} = 0.20$. Converting these values to allowable hourly emissions, results in the following allowable emissions: $\text{NO}_x = 2.95 \text{ lb/hr}$, $\text{CO} = 2.76 \text{ lb/hr}$, and $\text{PM} = 0.16 \text{ lb/hr}$. ENG2 is a 440 hp engine manufactured on August 2006 and is a Tier 3 that has allowable emissions standards (g/kW-hr) are: $\text{NO}_x = 4.0$, $\text{CO} = 3.5$, and $\text{PM} = 0.20$. Converting these values to allowable hourly emissions, results in the following allowable emissions: $\text{NO}_x = 1.3 \text{ lb/hr}$, $\text{CO} = 1.14 \text{ lb/hr}$, and $\text{PM} = 0.06 \text{ lb/hr}$. ENG3 is a 1,214 hp engine that was manufactured on August 2008 and is Tier 2 that has allowable emissions standards (g/kW-hr) $\text{No}_x = 6.4$, $\text{CO} = 3.5$, and $\text{PM} = 0.2$. Converting these to allowable emission rates: $\text{No}_x = 12.77$, $\text{CO} = 6.99$, and $\text{PM} = 0.4$. The estimated air emissions for the J.F. Allen's engine are below these allowable emission thresholds.

40CFR60 - Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants)

This subpart does apply to this facility, because the facility has the capability to process 150 tons of material per hour or greater (this facility has a processing limit of 700 TPH).

AIR QUALITY IMPACT ANALYSIS

Based on the annual emission rates this facility will not be a major source as defined by 45CSR14 and considering the nature of the emissions no air quality impact analysis was performed.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates J.F. Allen Company's mineral processing plant meets all the requirements of applicable rules and regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Randolph County location should be granted a 45CSR13 construction permit for their Pond Lick Mountain Quarry facility.

David Keatley
Engineer

Date